

CONCRETE THRUST BLOCKING

CONCRETE THRUST BLOCKING SCHEDULE

Flow (ft)	Min. Blocking Area (sq ft)	Min. Concrete Req'd (cu ft)	Req'd (cu yd)
2	7	0.7	0.1
3	10	1.0	0.1
4	13	1.3	0.1
5	17	1.7	0.2
6	20	2.0	0.2
8	27	2.7	0.3
10	34	3.4	0.4
12	41	4.1	0.5
14	48	4.8	0.6
16	55	5.5	0.7
18	62	6.2	0.8
20	70	7.0	0.9
24	84	8.4	1.1
28	101	10.1	1.3
32	118	11.8	1.5
36	136	13.6	1.7
40	154	15.4	1.9
48	196	19.6	2.4
56	238	23.8	2.9
64	280	28.0	3.4
72	322	32.2	3.9
80	364	36.4	4.4

INCREASE BLOCKING AREA AND CONCRETE QUANTITY FOR PRESSURES ABOVE 200 P.S.I. OR POOR SOIL CONDITIONS.
KEEP CONCRETE AWAY FROM JOINTS. PLACE CONCRETE EARLY DRY AND FORM IT REQUIRED FOR MAXIMUM AREA AGAINST UNDISTURBED SOIL.
ALL FITTINGS AND ACCESSORIES TO BE WRAPPED WITH 10 MIL POLYETHYLENE PRIOR TO POURING BLOCKING.
USE 3000 P.S.I. CONCRETE.

THRUST COLLAR INSTALLATION

SCHEDULE

PIPE DIA.	CONC. THRUST BLOCK
12"	12" x 12"
14"	14" x 14"
16"	16" x 16"
18"	18" x 18"
20"	20" x 20"
24"	24" x 24"
30"	30" x 30"
36"	36" x 36"

SIZE OF CONC. THRUST BLOCK AROUND PIPE TO BE DETERMINED BY DITCH (TRENCH) DIMENSION PLUS EXTENSION 2" INTO SIDES AND BOTTOM AS SHOWN IN SCHEDULE. CONC. INTO SIDES OF DITCH TO BE POURING AGAINST FIRM, UNDISTURBED GROUND. FILL AGAINST CONC. BELONGING TO BE COMPACTED TO 95% PROCTOR FOR LENGTH ALONG PIPE OF AT LEAST 6'-0" EACH SIDE.
WHERE THRUST BLOCKING OCCURS, THE TRENCH SHOULD BE AT MINIMUM WIDTH.

PAVEMENT REPAIR TYPICAL OPEN CUT OF NCDOT SECONDARY ROAD FOR 12" DIAMETER AND SMALLER PIPE

NOTES:
1. PAVT SHALL BE CUT TO TRUE LINE AND REMOVED BEFORE TRENCH IS CUT.
2. DIMENSION FOR TRENCH WIDTH MAY VARY AS REQUIRED TO ACCOMMODATE EXCAVATION, SHORING AND COMPACTION EQUIPMENT.
3. WIDTH OF TRENCH FOR PIPE BEDDING TO BE AS SHOWN UNLESS A GREATER WIDTH IS RECOMMENDED BY PIPE MANUFACTURER OR REQUIRED FOR USE OF EQUIPMENT ON SITE.
4. CONTRACTOR SHALL OBTAIN TESTING SERVICES ON COMPACTION OF THE BACKFILL FROM A FIRM WITH AN APPROVED NCDOT CERTIFIED TECHNICIAN AND PROVIDE REPORTS (WITH THE CERTIFICATION TESTING NUMBER) VERIFYING THAT THE COMPACTION CONFORMS WITH THE LATEST EDITION OF THE NCDOT STANDARD SPECIFICATIONS.

TYPICAL TRENCH SECTION IN CONC. PAVED AREA

TYPICAL TRENCH SECTION IN BITUMINOUS SURFACE PAVED AREA

IN UNPAVED GRAVEL AREAS, REPLACE GRAVEL WITH APPROPRIATE AS REQUIRED TO MATCH EXISTING SURFACE COMPACTED TO 6" THICKNESS.
PAVT CUT TO EXTEND 6" BEYOND EDGES OF TRENCH AS SHOWN. WHERE EXISTING PAVEMENT IS INSUFFICIENT THICKNESS TO DEVELOP TIGHT SEAL WITH NEW SURFACE, NEW PAVEMENT SHALL LAP EXISTING SURFACE.
ALL PAVT REPAIRS TO BE IN ACCORDANCE WITH LATEST EDITION OF THE N.C.D.O.T. SPEC.

METER BOXES

METER BOXES SHALL BE MANUFACTURED IN THE FOLLOWING SIZES AND MODELS:

SIZE	RUSSELL	VULCAN	SUMNER MACHINE
3/4"	MBX-2	VB404-2	MB2-MBC2
1"	MBX-2	VB404-2	MB2-MBC2
1 1/2"	MBX-3	VMB-3	MB3-MBC3
2"	MBX-5	VMB-3	MB3-MBC3

METER SETTERS SHALL BE ALL BRASS MANUFACTURED IN THE FOLLOWING SIZES AND MODELS:

SIZE	MUELLER	MCDONALD	FORD
3/4"	B-2404-2A	20-209W0033	VBH72-9W-11-33
1"	B-2404-2A	20-412W0044	VBH74-12W-11-44
1 1/2"	H-1423-2	20B112W0766	VBH76-12B-11-66
2"	H-1423-2	20B112W0776	VBH77-12B-11-77

VALVE INSTALLATION

RECESS VALVE BOX 1/2" IN CENTER OF COLLAR.
SET UPPER OUTSIDE EDGE OF COLLAR FLUSH W/EXISTING GRADE.
INSTALLATION ON SLOPE: SQUARE 3000 P.S.I. CONCRETE ENCASUREMENT AT 6" MIN. THICKNESS.
MATCH PAVING THICKNESS IN STREETS BEING RESURFACED. 1/2" IN AREAS NOT PAVED.
VALVE BOX SHOULD NOT CONTACT MAIN OR VALVE.
CONCRETE THRUST BLOCK (SEE DETAIL W-11).
UNDISTURBED SOIL.
GATE VALVES SHALL BE: MUELLER 350PSI A - 2361 - 20, MUELLER 350PSI A - 2380 - 20, M & H 87 - 01, M & H 3087 - 01, AMERICAN AIR SERIES 2500 OR CLOW MODEL F-6100 (SIZE 3" - 12").

PARALLEL WATER & SANITARY SEWER PIPE DETAIL

FERROUS MATERIALS ONLY. ALL OTHER MATERIALS MUST MAINTAIN A 10" MINIMUM HORIZONTAL SEPARATION.

TYPICAL BLOW OFF AT END OF 3" AND LARGER WATER MAINS

TYPICAL TRENCH SECTION FOR 2" P.V.C. PIPE ONLY

CAST IRON METER BOX - RUSSELL NO. MBX-2, SUMNER MACH. MB2-MBC2 OR VULCAN NO. VBM-3.
2" BRASS CURB STOP W/ BRASS PLUG. USE MUELLER B-25172, MCDONALD 6102WT, OR FORD B41-444-Q.
2" BRASS NIPPLE.
2" COMPRESSOR X MALE COUPLING.
2" COPPER PIPE W/ "X" JOINT.
MECH. JOINT PLUG W/ 2" TAP.
3" AND LARGER WATER LINE.
TAMPED BACKFILL.
SAND BED.
#10 COPPER WIRE REQUIRED FOR LOCATION OF PLASTIC PIPE - ATTACH WIRE TO EACH VALVE BOX W/ 1/4" DIA. BRASS BOLT DRILLED AND TAPPED INTO VALVE BOX. - ATTACH WIRE TO PIPE W/DUCT TAPE EVERY 10 FEET.

SERVICE CONNECTION WITHOUT SIDEWALK PRESENT

METER BOX TO BE LOCATED AT R/W.
FINISHED GRADE.
CURB & GUTTER.
SERVICE LINE TO BE INSTALLED AT SAME DEPTH AS WATER MAIN.
WATER LINE DEPTH TO BE A MIN. OF 48" FROM TOP OF PIPE TO FINISHED GRADE, UNLESS OTHERWISE SHOWN ON PLANS.
DEPTH AS SHOWN ON PLANS.
SERVICE SADDLE WITH DOUBLE STRAP & NEOPRENE GASKET. REQUIRED FOR ALL TAPS ON A.C. OR P.V.C. PIPES. REQUIRED FOR 2" AND 1 1/2" TAPS ON DUCTILE IRON PIPE AND CAST IRON PIPE. W/ PIPE EXCEEDING 1" ON 3" PIPE OR ON 4" PIPE MUST HAVE TEE CUT IN.
CORPORATION STOP WITH ANWA STD. TAPERED THREAD.
COPPER PIPE TYPE "X" SOFT.
EXTEND WATER SERVICE AS INDICATED ON TYPICAL METER BOX INSTALLATION DETAIL.

CORPORATION STOPS

CORPORATION STOPS SHALL BE ALL BRASS WITH ANWA CROD. STANDARD THREADS MANUFACTURED IN THE FOLLOWING SIZES AND MODELS:

SIZE	MUELLER	MCDONALD	FORD
3/4"	H-1500B	47011	F-1000-3-Q
1"	H-1500B	47011	F-1000-4-Q
1 1/2"	H-1500B	47011	F8-1000-6-Q
2"	H-1500B	47011	F8-1000-7-Q

CURB STOPS SHALL BE ALL BRASS MANUFACTURED IN THE FOLLOWING SIZES AND MODELS:

SIZE	MUELLER	MCDONALD	FORD
3/4"	B-25172	6102WT	B41-333-Q
1"	B-25172	6102WT	B41-444-Q
1 1/2"	B-25172	6102WT	B41-666-Q
2"	B-25172	6102WT	B41-777-Q

SERVICE PIPE SHALL BE SEAMLESS TYPE "X" COPPER AS SPECIFIED BY ASTM B88.

2" AIR RELIEF ASSEMBLY

2" WATER LINE CONNECTION TO PLUG

2" BRASS FLARED OR COMPRESSION FITTINGS.
2" CORPORATION STOP WITH ANWA STD. TAPERED THREAD. USE MUELLER H-1500B, MCDONALD 47011, OR FORD F-1000-7-Q.
2" TYPE "X" COPPER TUBING.
CAST IRON METER BOX - RUSSELL NO. MBX-2, SUMNER MACH. MB2-MBC2 OR VULCAN NO. VBM-3.
2" BRASS CURB STOP W/ BRASS PLUG. USE MUELLER B-25172, MCDONALD 6102WT OR FORD B41-444-Q.
2" SERVICE SADDLE.
2" CORPORATION STOP WITH ANWA STD. TAPERED THREAD. USE MUELLER H-1500B, MCDONALD 47011, OR FORD F-1000-4-Q.
1" BRASS CURB STOP W/ BRASS PLUG. USE MUELLER B-25172, MCDONALD 6102WT OR FORD B41-444-Q.
1" CORPORATION STOP WITH ANWA STD. TAPERED THREAD. USE MUELLER H-1500B, MCDONALD 47011, OR FORD F-1000-4-Q.
SPECIFICATIONS FOR COMPONENTS ARE THE SAME AS FOR SERVICE CONNECTIONS (SEE DETAIL W-8).

2" WATER LINE CONNECTION TO PLUG

TYPICAL 3/4" & 1" METER BOX INSTALLATION

CAST IRON VALVE BOX.
2" CURB STOP.
2" CORPORATION STOP.
2" TYPE "X" COPPER PIPE (5 FT. LONG).
2" CURB STOPS SHALL BE ALL BRASS BALL TYPE CURB VALVES MANUFACTURED BY MUELLER B-25172, MCDONALD 6102WT, OR FORD B41-777-Q.
SIMILAR INSTALLATION FOR SMALLER PIPE.
2" DI. OR C.I. BELL X MALE THREAD ADAPTER ON NEW INSTALLATIONS - ATTACH WIRE TO 2" BRASS NIPPLE & DRESSER COUPLING TO CONNECT EXISTING PIPE.
CAST IRON VALVE BOX.
2" CURB STOP.
CONC. THRUST COLLAR (SEE DETAIL W-2).
3" AND LARGER WATER LINE.
2" DI. OR C.I. BELL X MALE THREAD ADAPTER TO CONNECT EXISTING PIPE.
MECH. JOINT PLUG W/ 2" TAP.
2" BRASS NIPPLE & DRESSER COUPLING TO CONNECT EXISTING PIPE.
METER BOX (Flush with Grade).
METER.
METER SETTER TO BE SET AS LEVEL AS POSSIBLE.
COMPACTED BACKFILL.
CURB STOP (REQUIRED FOR EACH METER).
SETTER (SEE DETAIL W-8).
SDR 9 160 PSI PE PLASTIC PIPE OR TYPE "X" COPPER TAIL PIECE.
PLUG END OF PIPE.
BRICK ON EACH CORNER.
BRASS BARBED COUPLING W/ STAINLESS STEEL CLAMP ON PLASTIC PIPE.

SERVICE CONNECTION WITH SIDEWALK PRESENT

METER BOX LOCATION WITH SIDEWALK.
FINISHED GRADE.
CURB & GUTTER.
SERVICE LINE TO BE INSTALLED AT SAME DEPTH AS WATER MAIN.
WATER LINE DEPTH TO BE A MIN. OF 48" FROM TOP OF PIPE TO FINISHED GRADE, UNLESS OTHERWISE SHOWN ON PLANS.
DEPTH AS SHOWN ON PLANS.
SERVICE SADDLE WITH DOUBLE STRAP & NEOPRENE GASKET. REQUIRED FOR ALL TAPS ON A.C. OR P.V.C. PIPES. REQUIRED FOR 2" AND 1 1/2" TAPS ON DUCTILE IRON PIPE AND CAST IRON PIPE. W/ PIPE EXCEEDING 1" ON 3" PIPE OR ON 4" PIPE MUST HAVE TEE CUT IN.
CORPORATION STOP WITH ANWA STD. TAPERED THREAD.
COPPER PIPE TYPE "X" SOFT.
EXTEND WATER SERVICE AS INDICATED ON TYPICAL METER BOX INSTALLATION DETAIL.

FIRE HYDRANT INSTALLATION

HYDRANTS SHALL BE MUELLER SUPER CENTERLINE DRESSER MAIN STYLE 829 OR AMERICAN AIR. PAINT BARRED RED WITH WHITE TOP AND CAPS.
INSTALL HYDRANT SO BREAKAWAY FLANGE IS BETWEEN 2" & 4" ABOVE FINISHED GRADE.
REMOVE CHARMS FROM HYDRANT.
HYDRANT TO BE PLACED WITH PUMPER NOZZLE FACING CLOSEST CURB OR STREET.
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TYPICAL 1 1/2" & 2" METER BOX INSTALLATION

METER BOX (Flush with Grade).
METER.
METER SETTER TO BE SET AS LEVEL AS POSSIBLE.
COMPACTED BACKFILL.
CURB STOP (REQUIRED FOR EACH METER).
SETTER (SEE DETAIL W-8).
SDR 9 160 PSI PE PLASTIC PIPE OR TYPE "X" COPPER TAIL PIECE.
PLUG END OF PIPE.
BRICK ON EACH CORNER.
BRASS BARBED COUPLING W/ STAINLESS STEEL CLAMP ON PLASTIC PIPE.

TYPICAL 1 1/2" & 2" METER BOX INSTALLATION

METER BOX (Flush with Grade).
METER.
METER SETTER TO BE SET AS LEVEL AS POSSIBLE.
COMPACTED BACKFILL.
CURB STOP (REQUIRED FOR EACH METER).
SETTER (SEE DETAIL W-8).
SDR 9 160 PSI PE PLASTIC PIPE OR TYPE "X" COPPER TAIL PIECE.
PLUG END OF PIPE.
BRICK ON EACH CORNER.
BRASS BARBED COUPLING W/ STAINLESS STEEL CLAMP ON PLASTIC PIPE.

City of Asheboro Engineering Department 146 North Church Street Asheboro, North Carolina

Scale: Horiz. 1" = NONE, Vert. 1" = NONE
Date: 9/15
Drawn By: MLL
Checked By:
Disk No.:
Drawing No.:
Job No.: WATER
Sheet No.: 2 of 2